

## WHAT IS CLAIMED IS:

1. A static electricity dissipating fabric comprising a plurality of spun yarns held together in crossing relation to one another in a coordinated woven or knit construction, wherein said spun yarns comprise a plurality of electrically conductive staple fibers in spun relation with a plurality of substantially nonconductive natural or synthetic staple fibers and wherein said plurality of electrically conductive staple fibers are dispersed throughout said spun yarns such that said plurality of electrically conductive staple fibers define a network of electrically conductive junctions along the length of said spun yarns and between said spun yarns at locations where said spun yarns meet, and a grid of conductive filament yarns, wherein said spun yarns form electrically conductive junctions between conductive filament yarns.  
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- 15 2. A static electricity dissipating fabric as recited in claim 1, wherein said spun yarns are ring spun yarns.
3. A static electricity dissipating fabric as recited in claim 1, wherein said spun yarns are open end spun yarns.  
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4. A static electricity dissipating fabric as recited in claim 1, wherein said spun yarns are air jet spun yarns.
- 25 5. A static electricity dissipating fabric as recited in claim 1, wherein said substantially nonconductive natural or synthetic staple fibers are selected from the group consisting of polyester staple fiber fibers, cotton staple fibers and blends thereof.
- 30 6. A static electricity dissipating fabric as recited in claim 1, wherein said plurality of spun yarns comprise about 65% to about 99% by weight polyester staple fibers and about 0% to about 34% by weight cotton fibers and

about 1% to about 5% by weight of electrically conductive carbonaceous staple fibers of substantially linear geometry, and the filament yarn comprised about 50% to about 90% polyester and about 50 to about 10% carbon suffused nylon filament.

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7. A static electricity dissipating fabric as recited in claim 6, wherein said static electricity dissipating fabric is of a woven construction and wherein said static electricity dissipating fabric is characterized by an electrical resistance in the range of about to about 100,000 to about 100,000,000 ohms 10 per square when measured according to AATCC Test Method 76-1987 using a 100 volt potential and 1 inch electrode spacing at 20% relative humidity.

8. A static electricity dissipating fabric comprising a plurality of spun yarns held together in crossing woven relation to one another, wherein 15 said spun yarns comprise a plurality of electrically conductive carbonaceous staple fibers of substantially linear geometry in spun relation with a plurality of substantially nonconductive natural or synthetic staple fibers and wherein said plurality of electrically conductive carbonaceous staple fibers are dispersed throughout said spun yarns such that said plurality of electrically conductive 20 carbonaceous staple fibers define a network of electrically conductive junctions along the length of said spun yarns and between said spun yarns at locations where portions of said spun yarns meet within the fabric, and a grid of conductive filament yarns, wherein said spun yarns form electrically conductive junctions between conductive filament yarns.

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9. A static electricity dissipating fabric as recited in claim 8, wherein said spun yarns are ring spun yarns.

10. A static electricity dissipating fabric as recited in claim 8, wherein 30 said spun yarns are open end spun yarns.

11. A static electricity dissipating fabric as recited in claim 8, wherein

said spun yarns are air jet spun yarns.

12. A static electricity dissipating fabric as recited in claim 8, wherein  
5 said substantially nonconductive natural or synthetic staple fibers are selected  
from the group consisting of polyester staple fiber fibers, cotton staple fibers  
and blends thereof.

13. A static electricity dissipating fabric as recited in claim 8, wherein  
10 said plurality of spun yarns comprise about 65% to about 99% by weight  
polyester staple fibers and about 0% to about 34% by weight cotton fibers and  
about 1% to about 5% by weight of electrically conductive carbonaceous  
staple fibers of substantially linear geometry.

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14. A static electricity dissipating fabric as recited in claim 13,  
wherein said static electricity dissipating fabric is characterized by an electrical  
resistance in the range of about to about 100,000 to about 100,000,000 ohms  
per square when measured according to AATCC Test Method 76-1987 using  
20 a 100 volt potential and 1 inch electrode spacing at 20% relative humidity.

15. A static electricity dissipating fabric as recited in claim 13,  
wherein the electrically conductive carbonaceous staple fibers are carbon  
25 suffused acrylic fibers.

16. A static electricity dissipating fabric as recited in claim 15,  
wherein the carbon suffused acrylic fibers are characterized by a staple length  
of about 0.5 to about 3.5 inches.

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17. A static electricity dissipating fabric of woven construction having  
a warp direction and a fill direction, said static electricity dissipating fabric

comprising a plurality of spun yarns disposed in both the warp direction and the fill direction and wherein said spun yarns comprise a plurality of electrically conductive carbonaceous staple fibers of substantially linear geometry in spun relation with a plurality of substantially nonconductive natural or synthetic

5 staple fibers and wherein said plurality of electrically conductive carbonaceous staple fibers are dispersed throughout said spun yarns such that said plurality of electrically conductive carbonaceous staple fibers define a network of electrically conductive junctions along the length of said spun yarns and between said spun yarns at locations where portions of said spun yarns meet

10 within the fabric, and a grid of conductive filament yarns, wherein said spun yarns form electrically conductive junctions between conductive filament yarns, wherein said plurality of spun yarns comprise about 65% to about 99% by weight polyester staple fibers and about 0% to about 34% by weight cotton fibers and about 1% to about 5% by weight of electrically conductive

15 carbonaceous staple fibers of substantially linear geometry.

18. A static electricity dissipating fabric as recited in claim 17, wherein said static electricity dissipating fabric is characterized by an electrical resistance in the range of about to about 100,000 to about 100,000,000 ohms per square when measured according to AATCC Test Method 76-1987 using a 100 volt potential and 1 inch electrode spacing at 20% relative humidity.

19. A static electricity dissipating fabric as recited in claim 17, wherein said spun yarns are ring spun yarns.

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20. A static electricity dissipating fabric as recited in claim 17, wherein said spun yarns are open end spun yarns.

21. A static electricity dissipating fabric as recited in claim 17, wherein said spun yarns are air jet spun yarns.

22. A garment formed from seamed panels of the static electricity

dissipating fabric as recited in claim 17.

23. A garment as recited in claim 22, wherein said garment is a lab coat and wherein said lab coat is characterized by a sleeve to sleeve electrical 5 resistance of less than about 100,000,000 ohms after 100 washings when measured according to ESD Association Test Method STM 2.1-1997 at 10 volts and 12% relative humidity.

24. A garment as recited in claim 22, wherein said garment is a lab 10 coat and wherein said lab coat is characterized by a sleeve to sleeve electrical resistance in the range of less than about 10,000,000 ohms after 100 washings when measured according to ESD Association Test Method STM 2.1-1997 at 10 volts and 12% relative humidity.

15 25. A garment as recited in claim 22, wherein said garment is a lab coat and wherein said lab coat is characterized by a sleeve to sleeve electrical resistance of less than about 5,000,000 ohms after 100 washings when measured according to ESD Association Test Method STM 2.1-1997 at 10 volts and 12% relative humidity.

20 26. A garment comprising first and second panels seamed together, wherein each of said first and second panels comprises a static electricity dissipating fabric comprising a plurality of spun yarns comprising a plurality of electrically conductive staple fibers in spun relation with a plurality of 25 substantially nonconductive natural or synthetic staple fibers, and a grid of electrically conductive filament yarns, wherein said plurality of electrically conductive staple fibers are dispersed throughout said spun yarns such that said plurality of electrically conductive staple fibers define a network of electrically conductive junctions along the length of the spun yarns and 30 between the spun yarns at locations where said spun yarns meet, and between conductive filament yarns.

27. The garment as recited in Claim 26, wherein said garment is a lab coat and wherein said lab coat is characterized by a sleeve to sleeve electrical resistance of less than about 100,000,000 ohms after 100 washings when measured according to ESD Association Test Method STM 2.1-1997 at 5 10 volts and 12% relative humidity.